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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/886,998 | 06/25/2001 | Mark Farries | 2500.360 | 7033 |
| 7590 06/02/2006 | | | EXAMINER | |
| Hall, Priddy, Myers & Vande Sande Suite 200 10220 River Road Potomac, MD 20854 | | | PHAN, HANH | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2613 | |

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,998

Applicant(s)

FARRIES, MARK

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the RCE filed on 03/15/2006.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

-In claims 1 and 15, lines 9-14, the phrases "wavelength demultiplexing means for receiving the optical signal and for dividing the optical signal into a plurality of demultiplexed **wavelength bands**" and "at least one of the demultiplexed **wavelength bands has more than one wavelength channel for carrying data information**" were not described in the specification.

-In claim 13, lines 7-11, the phrase "**first wavelength demultiplexing means for coarse wavelength demultiplexing the plurality of multiplexed N channel optical sub-signals into M sub-signals wherein at least one of the M sub-signals comprises more than one wavelength channel**" was not described in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US Patent No. 5,710,649) in view of Chraplyvy et al (US Patent No. 6,205,268).

Regarding claims 1 and 15, referring to Figure 1, Mollenauer discloses n optical demultiplexer for demultiplexing an optical signal having a plurality of wavelength channels, wherein a centre wavelength of each of the channels is separated by a predetermined channel spacing, comprising:

wavelength demultiplexing means (i.e., wavelength division demultiplexer 26, Fig. 1) for receiving the optical signal and for dividing the optical signal into a plurality of demultiplexed wavelength streams;

time domain demultiplexing means (i.e., time division demultiplexers 28a-28d, Fig. 1) for receiving one of the plurality of demultiplexed wavelength streams and for dividing the one of the plurality of wavelength streams into a plurality of time domain demultiplexed signals; and

optical filtering means (i.e., receivers 30a-30p, Fig. 1) for wavelength demultiplexing the time domain demultiplexed signals into separate

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wavelength channels (col. 5, lines 45-67, col. 6, lines 1-22, col. 9, lines 47-67 and col. 10, lines 1-40).

Mollenauer differs from claims 1 and 15 in that he fails to specifically teach the wavelength division demultiplexer is a coarse wavelength division demultiplexer. However, Chraplyvy in US Patent No. 6,205,268 teaches the wavelength division demultiplexer is a coarse wavelength division demultiplexer (Figs. 1 and 2, col. 4, lines 1-67 and col. 5, lines 1-64). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the wavelength division demultiplexer is a coarse wavelength division demultiplexer as taught by Chraplyvy in the system of Mollenauer. One of ordinary skill in the art would have been motivated to do this since Chraplyvy suggests in column 4, lines 1-67 and col. 5, lines 1-64 that using such the wavelength division demultiplexer is a coarse wavelength division demultiplexer has advantage of allowing reducing the cross talk between the signals and increasing the signal to noise ratio.

Regarding claim 16, Mollenauer further teaches the step of identifying a timing signal from the wavelength streams for performing an optical time domain demultiplexing for at least one of the wavelength streams in dependence upon the timing signal (Fig. 5, col. 5, lines 45-67, col. 6, lines 1-22, col. 9, lines 47-67 and col. 10, lines 1-40).

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6. Claims 2-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollenauer (US Patent No. 5,710,649) in view of Chraplyvy et al (US Patent No. 6,205,268) and further in view of Lin et al (US Patent No. 6,782,203).

Regarding claims 2, 13 and 17, Mollenauer as modified by Chraplyvy teaches all the aspects of the claimed invention except fails to splitting means for splitting the optical signal into at least two sub-signals before launching one of the sub-signals into the demultiplexing means. However, Lin in US Patent No. 6,782,203 teaches splitting means for splitting the optical signal into at least two sub-signals before launching one of the sub-signals into the demultiplexing means (Fig. 4, col. 4, lines 22-67 and col. 5, lines 1-42). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the splitting means for splitting the optical signal into at least two sub-signals before launching one of the sub-signals into the demultiplexing means as taught by Lin in the system of Mollenauer modified by Chraplyvy. One of ordinary skill in the art would have been motivated to do this since Lin suggests in column 4, lines 22-67 and col. 5, lines 1-42 that using such the splitting means for splitting the optical signal into at least two sub-signals before launching one of the sub-signals into the demultiplexing means has advantage of allowing splitting the optical signal into the a plurality of the sub optical signals.

Regarding claims 3 and 14, Mollenauer further teaches clock recovery means for obtaining a clock signal from the one of the plurality of wavelength streams and for providing the clock signal to the time domain demultiplexing means for dividing the one of the plurality of wavelength streams into a plurality of time domain demultiplexed

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wavelength streams in dependence upon the clock signal (Fig. 5, col. 5, lines 45-67, col. 6, lines 1-22, col. 9, lines 47-67 and col. 10, lines 1-40).

Regarding claim 4, Mollenauer further teaches a plurality of time domain demultiplexing means and a plurality of optical filtering means, said plurality of time domain demultiplexing means for receiving the plurality of wavelength streams and for dividing the plurality of wavelength streams into a plurality of time domain demultiplexed wavelength streams, and each of said plurality of optical filtering means for demultiplexing each of the plurality of time domain demultiplexed wavelength streams into a single channel (Fig. 1, col. 5, lines 45-67, col. 6, lines 1-22, col. 9, lines 47-67 and col. 10, lines 1-40).

Regarding claims 5-8, the combination of Mollenauer, Chraplyvy and Lin teaches a frequency spacing of the demultiplexing means is one of an integer multiple and a non-integer multiple of the predetermined channel spacing (Fig. 1 of Chraplyvy).

Regarding claim 9, Mollenauer further teaches the time domain demultiplexing means is one of a lithium niobate (LiNbO₃) modulator and a semiconductor optical amplifier switch (Fig. 5, col. 5, lines 45-67, col. 6, lines 1-22, col. 9, lines 47-67 and col. 10, lines 1-40).

Regarding claim 10, the combination of Mollenauer, Chraplyvy and Lin teaches the optical filtering means is a band-pass filter (Fig. 1 of Mollenauer and Fig. 1 of Chraplyvy and Fig. 4 of Lin).

Regarding claim 11, the combination of Mollenauer, Chraplyvy and Lin teaches

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the optical signal has a return to zero (RZ) modulation format (Fig. 1 of Mollenauer and Fig. 1 of Chraplyvy and Fig. 4 of Lin).

Regarding claim 12, the combination of Mollenauer, Chraplyvy and Lin teaches a sum of bit-rates of the plurality of time domain demultiplexed wavelength streams is equal to a bit-rate of the one of the plurality of wavelength streams (Figs. 1 and 5 of Mollenauer and Fig. 1 of Chraplyvy and Fig. 4 of Lin).

Response to Arguments

7. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


HANH PHAN
PRIMARY EXAMINER